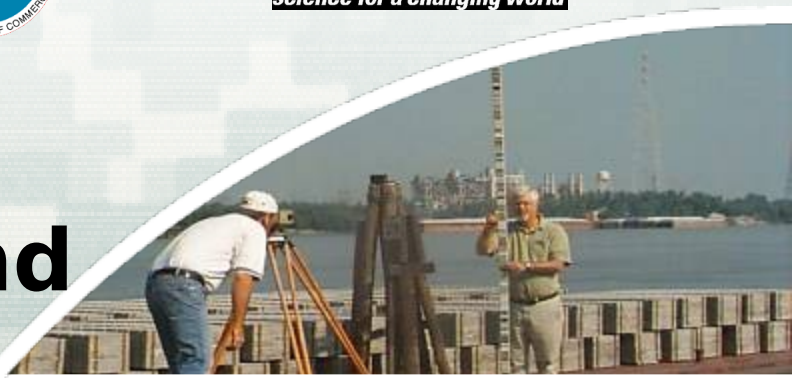
U. S. Geological Survey – U.S. Army Corps of Engineers– Bureau of Reclamation - National Ocean Service
Joint Headquarters Meeting

US Army Corps of Engineers®

Adopting National Standards for Tidal and Geodetic Datums



Jim Garster
US Army Corps of Engineers
Army Geospatial Center

US Army Corps of Engineers
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05/26/17

Overview

- Interagency Performance Evaluation Task Force (IPET) to Comprehensive Evaluation of Project Datums (CEPD)
- CEPD Compliance Tracking Tool (CCTT)
  - ► Current Status
- Guidance developed
  - ► Used to Evaluate Projects
- Continued Challenges
- U-SMART

Background

(Comprehensive Evaluation of Project Datums – CEPD)

Implements lessons learned from Hurricane Katrina IPET Report … reference CG memo dated 4 Dec 06

(1) Inventory & Evaluate Project Vertical Datums

- Adequacy of elevation connections with (NOAA) federal geodetic & water level reference systems (Identify Deficiencies)
- If both geodetic and hydraulic/tidal reference datums are compliant with CEPD standards (EC 1110-2-6070)
  - Attach verification documents to Project Report
- If not compliant, develop plan to update project to correct datum
- Critical items for HQ (and District) per project
  - Reference datums compliant or non-compliant
  - Cost to bring into compliance
  - Estimated date of completion--programmed
  - Cost avoidance (navigation projects)
- Notify local sponsor of any deficiencies

Background Cont.

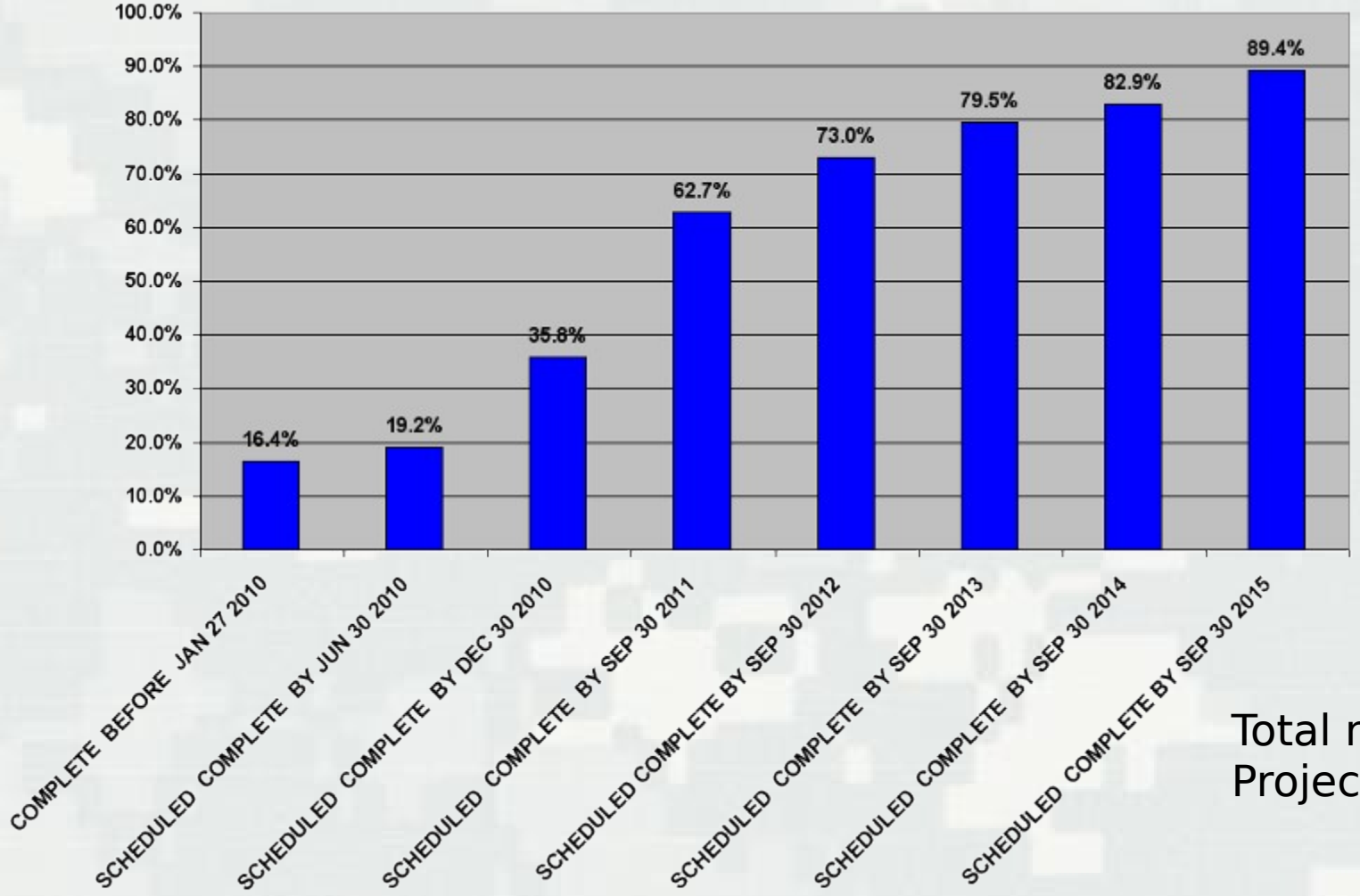
(2) Transition to current vertical datum

- Re-Survey/Adjustments to update project datum
- Corrective Action Database (CEPD Compliance Tracking Tool)
- Reported quarterly to HQ

(3) Make Necessary changes to Project

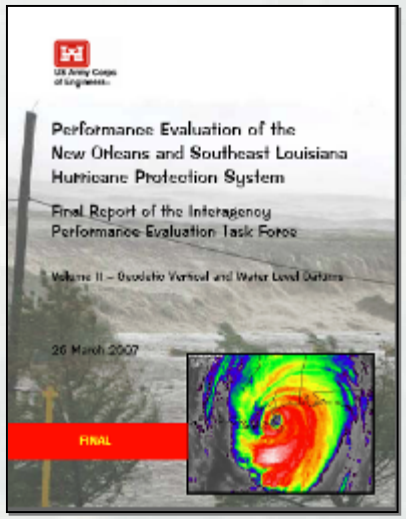
- Notify PM/Engineer of changes to control
- Raise levee, decrease dredging, etc…

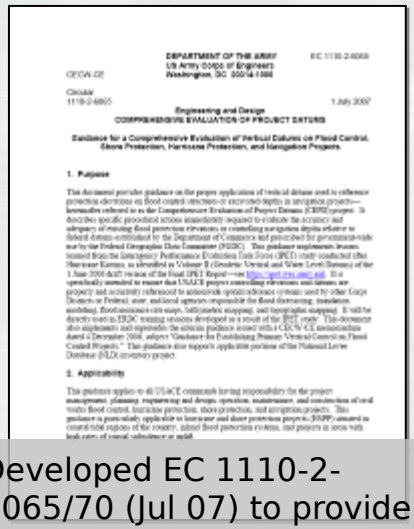
Projects Compliant with Current Standards



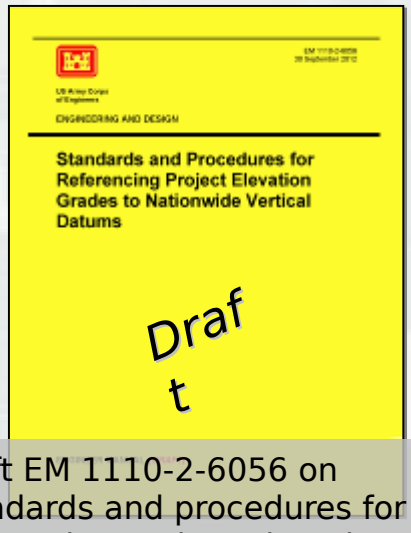
Total number of Projects: 2610

Guidance Development

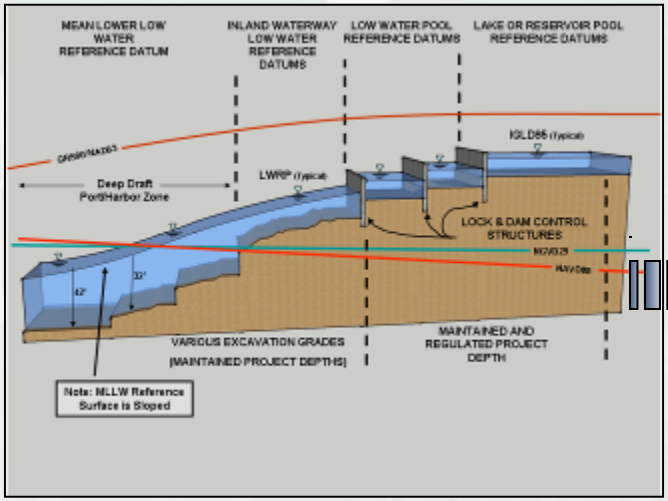

Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System
Final Report of the Interagency Performance Evaluation Task Force
26 March 2007
FINAL


DEPARTMENT OF THE ARMY
US Army Corps of Engineers
Washington, DC 20314-1000
Engineering and Design
COMPREHENSIVE EVALUATION OF PROJECT DATUMS
Guidance for a Comprehensive Evaluation of Vertical Datums on Flood Control, Storm Protection, Hurricane Protection, and Navigation Projects
1. Purpose
2. Applicability

Developed EC 1110-2-6065/70 (Jul 07) to provide interim guidance on evaluating project datums.


US Army Corps of Engineers
ENGINEERING AND DESIGN
Standards and Procedures for Referencing Project Elevation Grades to Nationwide Vertical Datums
Draft

Draft EM 1110-2-6056 on Standards and procedures for referencing project elevation grades to nationwide vertical datums


MEAN LOWER LOW WATER REFERENCE DATUM
INLAND WATERWAY LOW WATER REFERENCE DATUMS
LOW WATER POOL REFERENCE DATUMS
LAKE OR RESERVOIR POOL REFERENCE DATUMS
Deep Draft Port/Harbor Zone
LWRP (Typical)
LOCK & DAM CONTROL STRUCTURES
VARIOUS EXCAVATION GRADES (MAINTAINED PROJECT DEPTHS)
MAINTAINED AND REGULATED PROJECT DEPTH
Note: MLLW Reference Surface is Sloped

Relate all to a Single Nationwide Reference System (i.e. NSRS)

Developed ER 1110-2-8160 on Policy for referencing project elevation grades to nationwide vertical datums

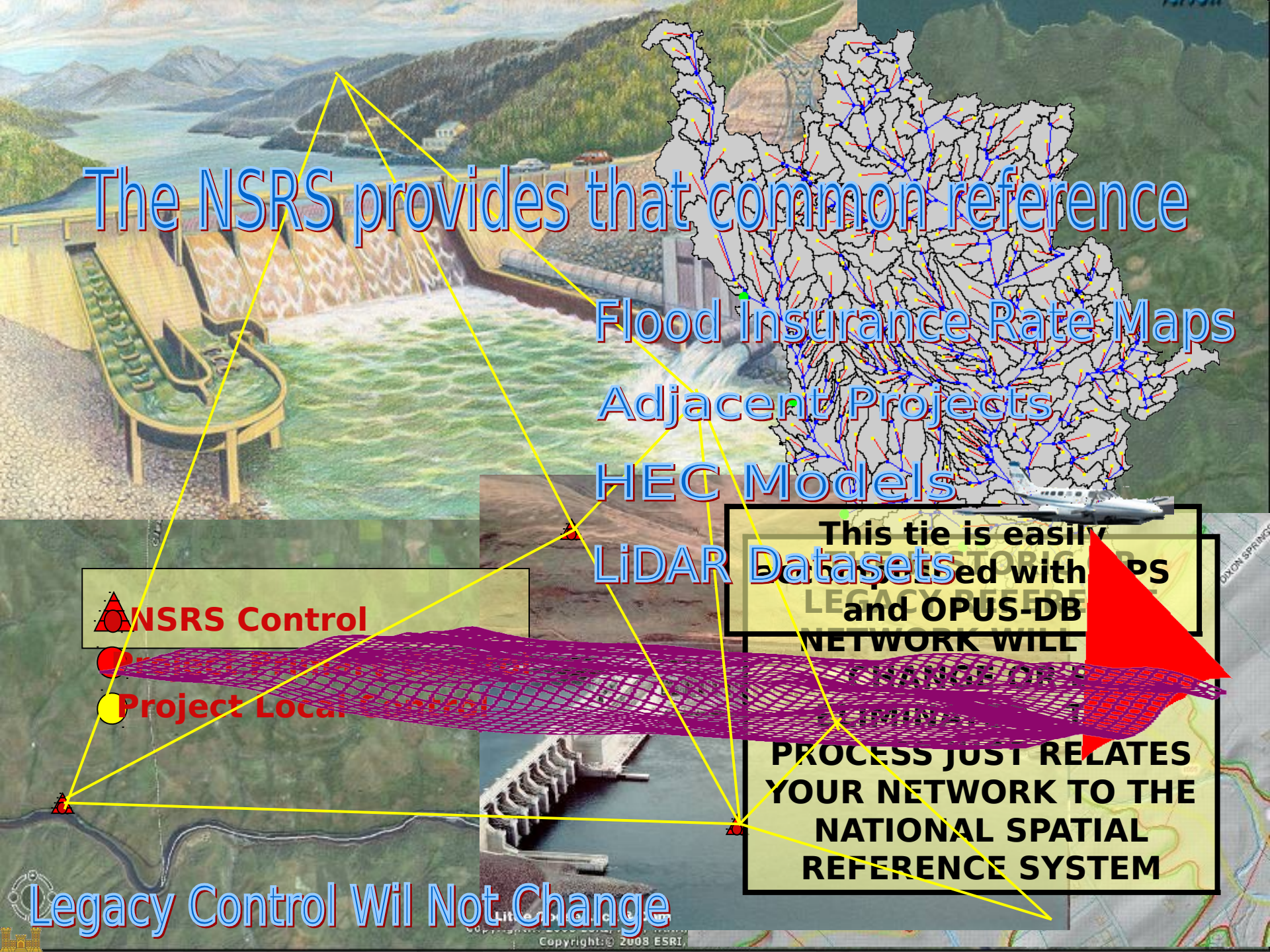
Working Partnership

- USACE working closely with NOAA (NGS, Office of Coast Survey, and CO-OPS)
  - Assistance in Developing Guidance
  - Training and Workshops
  - Certification Program
  - Tools for Connection to NSRS (OPUS-DB, VDATUM)
  - Updating Projects
- Need to work closer with USGS
  - Stream gages

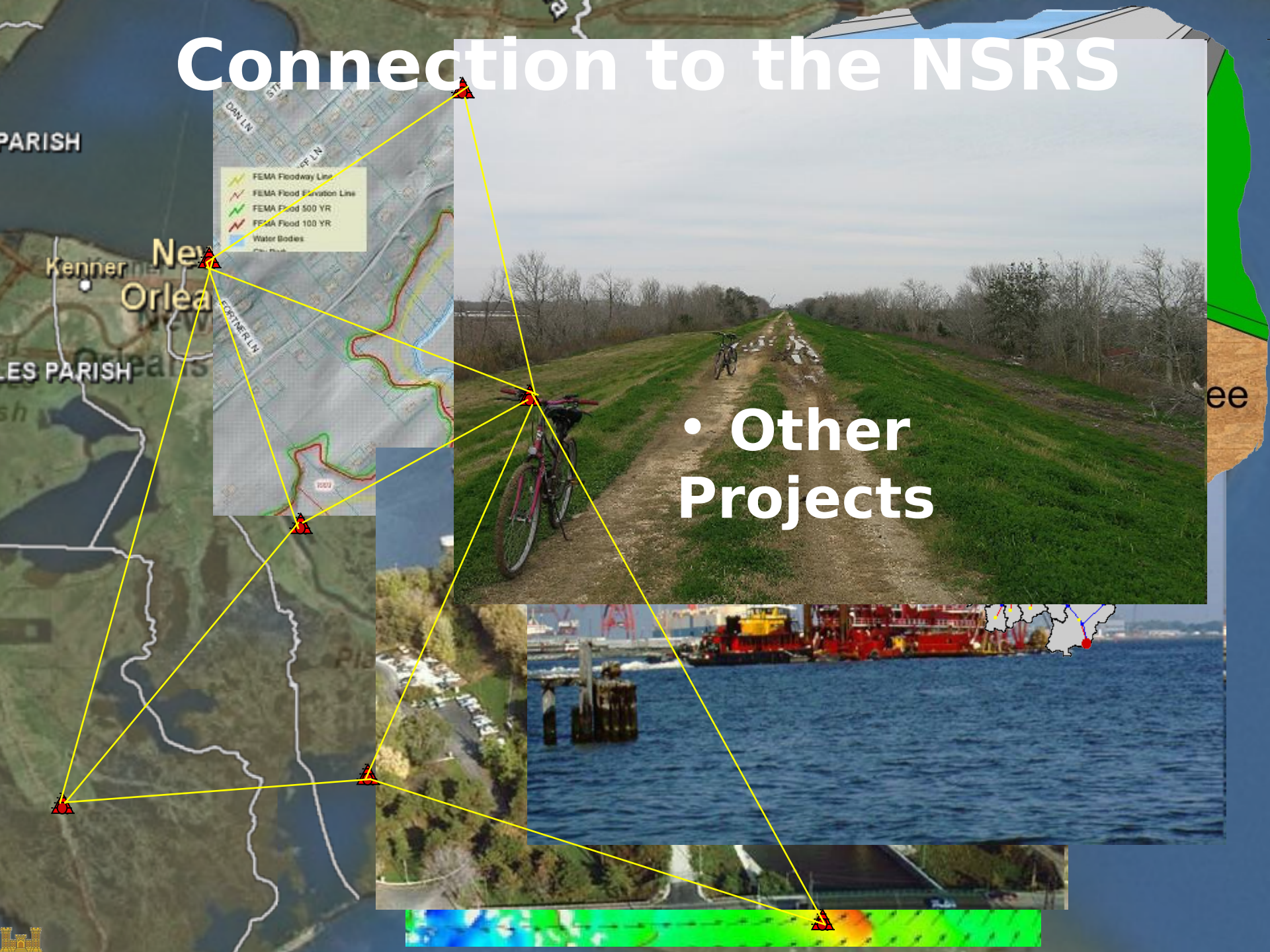
USACE Guidance/Standards

ER 1110-2-8160
POLICIES FOR REFERENCING PROJECT ELEVATION GRADES TO NATIONWIDE VERTICAL DATUMS

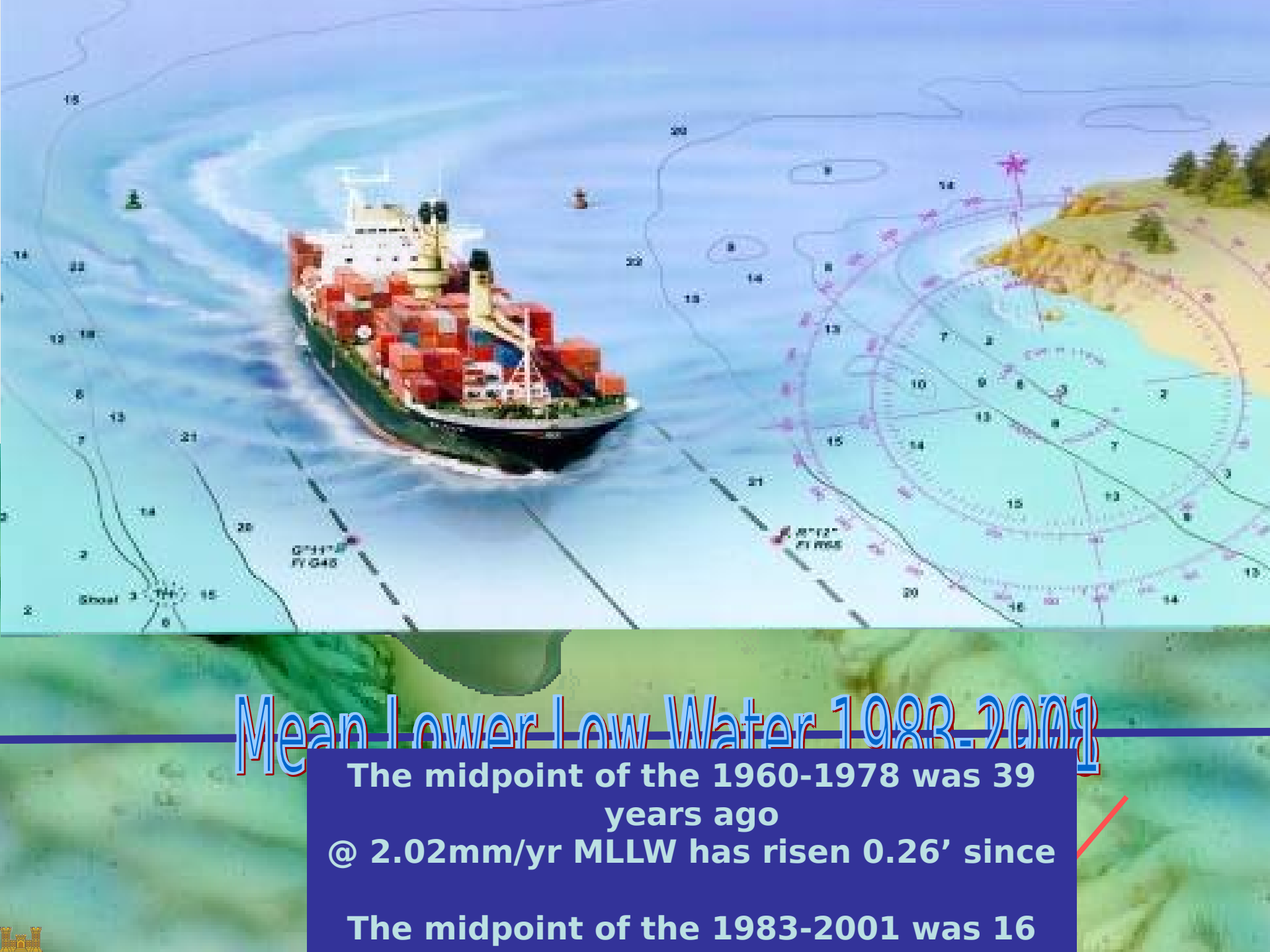
It is the policy of the Corps of Engineers that the designed, constructed, and maintained elevation grades of projects shall be reliably and accurately referenced to a consistent nationwide framework, or vertical datum—i.e., the National Spatial Reference System (NSRS) and the National Water Level Observation Network (NWLON) maintained by the US Department of Commerce (NOAA).


The NSRS provides that common reference
Flood Insurance Rate Maps
Adjacent Projects
HEC Models
LiDAR Datasets
NSRS Control
Project Local Control
This tie is easily
and OPUS-DB
PROCESS JUST RELATES
YOUR NETWORK TO THE
NATIONAL SPATIAL
REFERENCE SYSTEM
Legacy Control Wil Not Change

Connection to the NSRS



- Other Projects



Mean Lower Low Water 1983-2001

The midpoint of the 1960-1978 was 39 years ago
@ 2.02mm/yr MLLW has risen 0.26’ since

The midpoint of the 1983-2001 was 16

Continued Challenges

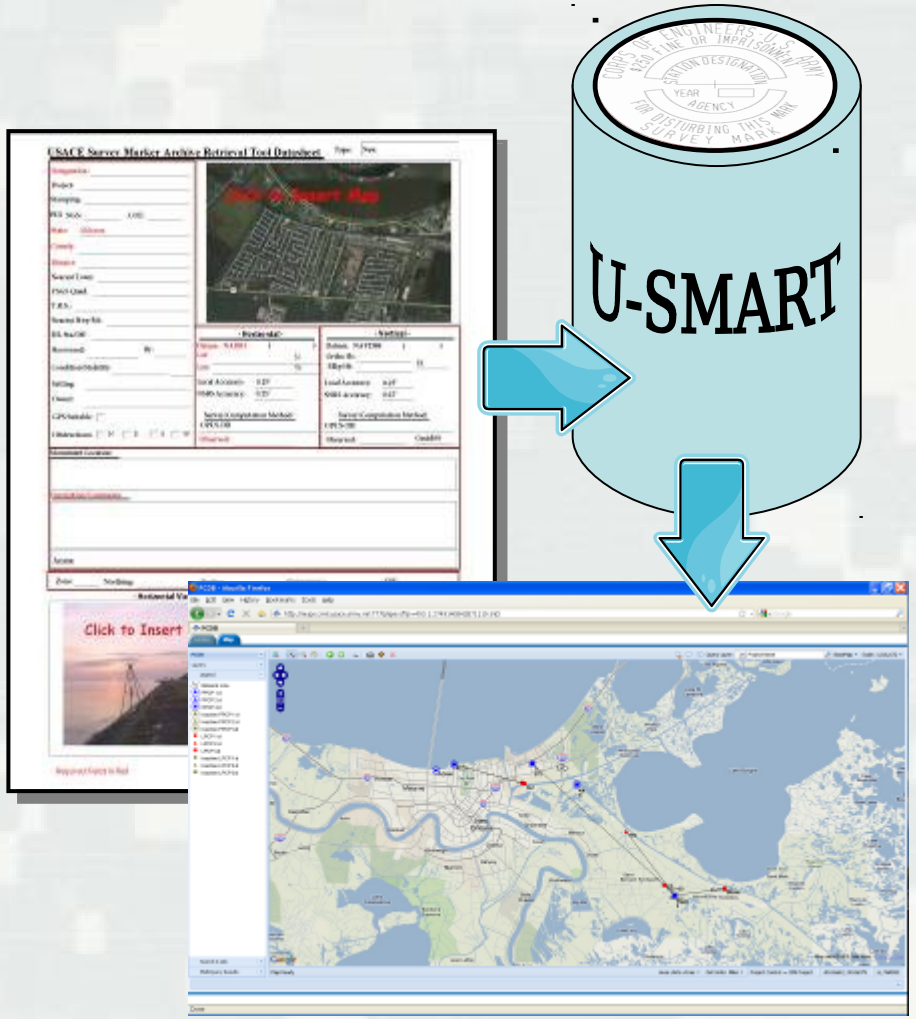
- Timeline for completion
  - ► Project dependent
- Implementing standards
  - ► Establishing Geodetic and Water Level references
- Education
  - ► Workshops on Datums

U-SMART

USACE Survey Monument Archival and Retrieval Tool

General Capabilities

- Web Map Interface
- Linked to the CorpsMap System
  - Link control to project
- Keeps Track Of Your Project Control
  - Common source for all control
  - Archives superseded values
- Submit data via PDF form or on-line web interface
- Hyperlink To NGS Datasheet And OPUS-DB
- Checks Against NGS Published Coordinates
- Versioning For Superseded Control



Questions?

Additional Information Available at:

http://www.agc.army.mil/ndsp/

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